

Proposed Tubing Flow Rate Verification Plan for Aliso Canyon

In order to develop a more accurate estimate of potential withdrawal capabilities, the following flow test plan is proposed to establish current well deliverability for tubing-only flow at Aliso Canyon. Wells to be tested will include those available for withdrawal and focus first on the wells that have been fully approved by DOGGR and are reconfigured for tubing-flow only. Wells that have not been fully tested that are still available for withdrawal in order to meet the CPUC’s requirement of holding 420 MMcfd of withdrawal capacity will also be flow tested to affirm the minimum capacity requirement is met throughout the process.

Procedure:

1. Flow test one or two wells per day for a maximum duration of 3-6 hours.
2. Limit the total flow of each well test to 5 MMcf/day max.
3. During each flow test, attempt to establish at least 1 hour of stable, steady-state flow.
 - a. For DOGGR approved wells as they return to service, limit flow test duration to 6 hours max. These wells may require a longer test duration in order to clean up kill fluids that may remain in the wellbore.
 - b. For uninspected wells “Held for WD” (17 in total), limit the duration of flow test to 3 hours max.
4. Verify flow rates using the follow two methods:
 - a. By differential through the meters in Dehy Plant 1
 - b. By portable Ultrasonic meter mounted on the tubing production lateral
5. Record real-time pressure data using the pressure transmitters connected to each well. Record available real-time tubing and casing pressure data streams for the entire duration of the flow test.
6. At the conclusion of each flow test, trend all available real time pressure and measured flow rate data. Include at least one hour of shut-in well head pressure before and after each flow test.
7. Based on the results, resize tubing lateral chokes to maximize deliverability and reliability. Publish updated flowrate estimates in the Master withdrawal schedule and the Energy Division weekly report.

Proposed Well List: (Comprised of wells that have received DOGGR approval of all required testing, wells that may complete all required testing prior to going back on injection, and the 17 wells that have completed the first phase of required testing and are currently available for withdrawal.):

Well ID	API Number	Max Flow Rate Potential (MMcfd)	Max Test Duration (hours)	Total Expected WD volume (MMcf)	Max Cumulative WD Volume Expected (BCF)
P50C	3724337	40.0	3.0	5.0	0.005
P50B	03724336	35.0	3.0	4.4	0.0094
FF38A	03724230	20.0	6.0	5.0	0.0144
FF38B	03724231	25.0	4.5	4.7	0.0191
P32F	03721354	35.0	3.0	4.4	0.0234

P32D	03721355	35.0	3.0	4.4	0.0278
P32C	03721360	25.0	3.0	3.1	0.0309
P32B	03721276	25.0	3.0	3.1	0.0341
P69D	03724130	20.0	6.0	5.0	0.0391
P69B	03724127	20.0	6.0	5.0	0.0441
P25R	03700712	10.0	6.0	2.5	0.0466
P32	03700719	20.0	3.0	2.5	0.0491
FF35E	03721278	35.0	3.0	4.4	0.0534
FF35C	03721279	25.0	3.0	3.1	0.0566
P26D	03721320	25.0	3.0	3.1	0.0597
P26	03700713	20.0	3.0	2.5	0.0622
FF34A	03722044	20.0	3.0	2.5	0.0647
FF34BR	03722302	20.0	3.0	2.5	0.0672
MA1A	03721891	20.0	3.0	2.5	0.0697
P30	03700717	20.0	3.0	2.5	0.0722
P34	03700721	20.0	3.0	2.5	0.0747
P37A	03722046	25.0	3.0	3.1	0.0778
P47	03700734	20.0	3.0	2.5	0.0803
SS44B	03721361	10.0	3.0	1.3	0.0816
FF38C	03724232	20.0	6.0	5.0	0.0866
P69F	03724226	10.0	6.0	2.5	0.0891
P69J	03724224	10.0	6.0	2.5	0.0916
P68A	03722742	25.0	4.0	4.2	0.0957
FF32A	03721872	30.0	4.0	5.0	0.1007
P69K	03724236	20.0	6.0	5.0	0.1057
P69A	03722051	10.0	6.0	2.5	0.1082
P69H	03724223	20.0	6.0	5.0	0.1132
FF35B	03721458	25.0	4.0	4.2	0.1174
P72B	03724146	20.0	6.0	5.0	0.1224
FF32C	03721359	25.0	4.0	4.2	0.1266
P42B	03721877	25.0	4.0	4.2	0.1307
P24B	03724144	25.0	4.0	4.2	0.1349
P72A	03724145	25.0	4.0	4.2	0.1391
P26C	03721353	20.0	4.0	3.3	0.1424
P24A	03724143	25.0	4.0	4.2	0.1466
P42C	03721878	35.0	3.0	4.4	0.1509
P26E	03721319	35.0	3.0	4.4	0.1553
FF35A	03721457	35.0	3.0	4.4	0.1597
FF32F	03721313	25.0	4.0	4.2	0.1639
P69C	03724128	20.0	3.0	2.5	0.1664
FF32G	3730374	40.0	3.0	5.0	0.1714
FF32H	3730456	40.0	3.0	5.0	0.1764
P44	03700731	20.0	6.0	5.0	0.1814
P68B	03724136	5.0	6.0	1.3	0.1826